UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,711	12/27/2001	Akio Nagasaka	HITA.0151	9249

			EXAMINER
38327	7590	10/31/2005	LE, BRIAN Q

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ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *12/27/2001*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 11-18 are rejected under 35 U.S.C. 101 because "a program for processing of

character search ... causing a computer" of claim 11 is non-statutory because the terminology "A

program" alone has no set definition. A statutory product with descriptive material must include

a positive recitation of the computer readable medium -- MPEP 2106, case law, USTPO policy,

all are founded on this.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   Claims 1-6, 9-10, and 15-18 are rejected under 35 U.S.C. 112, first paragraph, as failing

to comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains,

or with which it is most nearly connected, to make and/or use the invention. Regarding claim 1,

the concept of "detecting a character region in the image **based upon line widths of the**

character image contained in the character region" (Emphasis added) is not supported in the

specification. The original disclosure does not show how one skilled can detect a character

region in the image based upon line widths of the character image contained in the character

region. Referring to claim 4, the claims is not supported in the original disclosure specifically "a

region where equi-luminance pixel strings **extending over** a pre-designated length with

luminance difference ... same image range" (Emphasis added). Similar problem also found in

claim 9. As to claims 5-6 and 10, the limitation regarding to "elastic matching of one-

dimensional features strings" is not supported in the specification. The term "elastic matching"

is not understood by one of the ordinary skilled in the art. Also to claim 15, the original

disclosure does not teach "the concentrated region is decided by multiplying a pixel number in

the x direction with a pixel number in the y direction". For claim 16, the limitation "extracting

steps includes extracting a character image feature string along one dimension of the character

region or the character image of interest by **counting edges** with a predetermined luminance

change" is not supported in the original disclosure. Referring to claim 17, the specification

further does not show the method comprising "a step of **removing line border blurring by

correcting a border pixel luminance value into a maximum or minimum luminance value

of adjacent pixels**" (Emphasis added). Regarding claim 18, the original disclosure does not

show the support for the step of "removing non-character background in the image by outlining

the character region with a rectangle having a sufficient margin, then removing pixels outside of

the rectangle and with the same colors and luminance values as the background". The Applicant

must clearly show (page number and line number) the support for the claimed limitation.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Objections

5.   Claims 4-6 and 9-10 are objected to because these claims are very difficult to understand

due to the use of confusing language. Appropriate correction is required. The prior art rejection

based on the Examiner's best understanding.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 1, 3-7, and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohya

et al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine

Intelligence, Volume 16, Issue 2, Pages 214-220.

Regarding claim 1, Ohya teaches a method for searching at least one character image

embedded in an image (abstract), comprising:

providing the image (abstract);

detecting a character region in the image (page 215, second column, first paragraph) based upon

line widths of the character image contained in the character region (FIG. 1-FIG. 3);

extracting a first visual feature of the character region (FIG. 2, region number = 1);

providing a character image of interest (FIG. 1-FIG.3);

extracting a second visual feature from the character image of interest (FIG. 2, region number =

2);

comparing the first visual feature with the second visual feature to determine a level of

similarity (page 215, second column, first paragraph and page 217, first column); and

outputting the character region with the level of similarity (FIG. 4).

Regarding claim 3, Ohya teaches the method for searching character image in an image

wherein the step of detecting said character region on the basis of its shape determines, as a

character, a region where equi-luminance pixel strings are locally concentrated, in the equi-

luminance pixel strings, pixels having luminance differences in a pre-designated range are

consecutive as long as a pre-designated extent (the detection of character if pixels of the

detected character have similar pixel values which are different from the background pixels

values) (FIG. 1-FIG.3 and page 215).

For claim 4, Ohya teaches the method for searching character image in an image wherein

the step of detecting said character region on the basis of its shape determines, as a character, a

region where equi-luminance pixel strings extending over a pre-designated length with a

luminance difference within a pre-designated range in both vertical and horizontal directions are

present at the same time within the same image range (page 215).

Regarding claim 5, Ohya teaches the method for searching character image in an image,

wherein at the step of extracting the first visual feature of said character area and at the step of

extracting the second visual feature of said character area (as discussed in claim 1), both the

first visual feature and the second visual feature to be extracted are one-dimensional feature

strings (FIG. 1-3 discloses the extraction in one-dimension) in which the numbers of edges in

the vertical direction obtained by binarization of character regions and character strings are

arrayed horizontally (FIG. 1), and the step of determining a level of similarity determines the

level of similarity by elastic matching (calculate similarity) of one-dimensional feature strings both of which constitute the first visual feature and the second visual feature (page 215, second column).

For claim 6, Ohya further teaches the method for searching character image in an image wherein at the step of extracting the first visual feature of said character area and at the step of extracting the second visual feature from said character image (as discussed in claim 1), both the first visual feature and the second visual feature to be extracted are one-dimensional feature strings (FIG. 1-3 discloses the extraction in one-dimension) where the numbers of edges in the horizontal direction obtained by binarization of character regions and character strings are arrayed vertically (FIG. 1), and the step of determining a level of similarity determines the level of similarity by elastic matching of one-dimensional feature strings both of which constitute the first visual feature and the second visual feature (similarity calculation) (page 215, second column).

For claim 7, please refer back to claim 1 for the teaching. In addition, Ohya teaches a mean for detecting a character region from the frame of the entered image on the basis of its shape (FIG. 1-3). And an output means for outputting as the result of search the character region matching the visual features in respect of which the level of similarity has been determined or a frame of image containing the region (page 215; FIG. 1-4 and page 217, first column, first paragraph).

For claim 9, please refer back to claim 4 for further teachings and explanations.

For claim 10, please refer back to claims 5-6 for further teachings and explanations.

For claim 11, please refer back to claims 1 and 7 for further teachings and explanations.

Regarding claim 12, Ohya discloses the method whereby the step of detecting said

character region includes extracting lines width a width in a specific range and extracting a

concentrated region of the extracted lines as said character region (FIG. 1, FIG. 2 and page 216,

B. Detecting Character Candidate Regions).

For claim 13, please refer back to claims 3 and 4 for the teachings and explanations.

For claim 14, Ohya also discloses the method whereby the line width is taken in vertical

and horizontal directions (FIG. 1 and FIG. 2).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohya et

al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine

Intelligence, Volume 16, Issue 2, Pages 214-220.

Regarding claim 2 and claim 8, Ohya teaches the display or both high level of similar and

low level of similarity (page 217, first column). However, Ohya does not explicitly teach the

method for searching character image in an image, wherein at the step of outputting said

character region outputs character regions in the descending order of the level of similarity.

The Examiner takes Office Notice that it would have been obvious to one skilled in the art that

the level of similarity can be output at the descending or ascending order as a conventional

displaying order. This type of output (descending/ascending) output would have been obvious to one of the ordinary skilled in the art to organize the output data/level of similarity.

10.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ohya et al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine Intelligence, Volume 16, Issue 2, Pages 214-220 and further in view of Akira et al. "A method for recognizing character strings from maps using linguistic knowledge.", I.E.E.E. 1993, pages: 561-564.

Regarding claim 15, Ohya does not explicitly teach the concept of concentrated region is decided by multiplying a pixel number in the x direction with a pixel number in the y direction. However, Akira teaches a method of searching/recognition of character image embedded in an image (character from maps of various figures) (abstract) wherein concentrated region (pixel density) is decided by multiplying a pixel number in the x direction with a pixel number in the y direction (page 562, first column, 3.1 Character Candidates Extraction). Modifying Ohya's method of searching character image embedded in an image according to Akira would able to one of the ordinary skilled in the art to determine the concentration of the image region by multiplying a pixel number in the x direction with a pixel number in the y direction. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Ohya according to Akira.

Not in the Prior Arts

11.   Claims 16-18 are not found in the prior arts.

CONCLUSION

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The

examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BL
October 21, 2005

SAMIR AHMED
PRIMARY EXAMINER